

### AMENDMENTS TO THE CLAIMS

Please amend the claims to read as follows, and cancel, without prejudice or disclaimer for resubmission in a divisional or continuation application, claims indicated as cancelled:

1. (Currently amended) A method comprising:  
    adaptively and separately selecting a coding mode of each orthogonal frequency division multiplexing sub-carrier symbols ~~symbol~~ of a data stream in an orthogonal frequency division multiplexing channel according to a received channel state information that relates to the orthogonal frequency division multiplexing sub-carrier;  
    adaptively grouping receivers according to a desired coding mode received with the received channel state information,  
    wherein said coding mode is selectable so that said sub-carrier is able to support the sensitivity required for transmitting in the selected mode.
2. (Original) The method of claim 1, comprising coding the data stream generated by a multiple-in multiple-out receivers-transmitters system in a multiplexing mode.
3. (Original) The method of claim 1, comprising coding the data stream generated a multiple-in multiple-out receivers-transmitters system in a diversity mode.
4. (Cancelled)
5. (Original) The method of claim 1, comprising:  
    coding symbols of a first subset of sub-carriers of an orthogonal frequency division multiplexing channel in a multiplexing mode; and  
    coding symbols of a second subset of sub-carriers of an orthogonal frequency division multiplexing channel in a diversity mode.
6. (Previously presented) A method comprising:  
    coding symbols of a first subset of sub-carriers of an orthogonal frequency division multiplexing channel in a first mode; and  
    coding symbols of a second subset of sub-carriers of an orthogonal frequency division multiplexing channel in a second mode;

wherein said coding is selectable so that each of said subset of sub-carriers is able to support the sensitivity required for transmitting in the respective mode.

7. (Original) The method of claim 6 comprising:

transmitting a first group of symbols of sub-carriers of an orthogonal frequency division multiplexing channel via a first antenna; and

transmitting a second group of symbols of sub-carriers of an orthogonal frequency division multiplexing channel via a second antenna.

8. (Original) The method of claim 6 wherein transmitting the second group of symbols comprises:

transmitting symbols of the first subset of sub-carriers of an orthogonal frequency division multiplexing channel with a diversity mode and symbols of the second subset of sub-carriers of an orthogonal frequency division multiplexing channel in a multiplexing mode.

9. (Previously presented) An apparatus comprising:

a coding mode selector to select a coding mode of a symbol of an orthogonal frequency division multiplexing sub-carrier according to a received channel state information that related to the orthogonal frequency division multiplexing sub-carrier; and

a plurality of receivers;

wherein said coding mode is selectable so that said sub-carrier is able to support the sensitivity required for transmitting in the selected mode, and

wherein said apparatus is configured to adaptively group said plurality of receivers according to a desired coding mode received with said received channel state information.

10. (Original) The apparatus of claim 9, further comprising:

a channel state analyzer to select the coding mode based on a quality indicator of the orthogonal frequency division multiplexing sub-carrier.

11. (Original) The apparatus of claim 9, comprising a multiple-in-multiple-out receivers transmitters system.

12. (Original) The apparatus of claim 9 wherein the coding mode comprises at least one of a diversity mode and a multiplexing mode.

- 13.(Original) The apparatus of claim 9 comprising:
- a first transmitter to transmit the symbol; and
  - a second transmitter to transmit a coded symbol that is coded according to one or more coding mode.
- 14.(Original) The apparatus of claim 13 wherein the coded symbol is coded either in a diversity mode or in a multiplexing mode.
- 15.(Original) The apparatus of claim 13 wherein the second transmitter is able to transmit two or more coded symbols wherein at least some of the coded symbols are coded according the diversity mode and at least some other coded symbols are coded according to multiplexing mode.
- 16.(Currently amended) An apparatus comprising:
- a plurality of receivers; and
  - a coding mode selector to select a coding mode of a symbol of an orthogonal frequency division multiplexing sub-carrier according to a predetermined criterion;
  - wherein said coding mode is selectable so that said sub-carrier is able to support the sensitivity required for transmitting in the selected mode, and
  - wherein said apparatus is configured to adaptively group said plurality of receivers according to a desired coding mode received with a received channel state information.
- 17.(Original) The apparatus of claim 16, further comprising:
- a first transmitter to transmit a first group of symbols of sub-carriers of an orthogonal frequency division multiplexing channel via a first antenna; and
  - a second transmitter to transmit a second group of symbols of sub-carriers of an orthogonal frequency division multiplexing channel via a second antenna.
- 18.(Original) The apparatus of claim 16, wherein the second group of symbols comprises symbols of the first group of symbols coded according to a diversity mode and symbols of the second group of symbols coded according to a multiplexing mode.
- 19.(Currently amended) A wireless communication device comprising:

a multiple-in-multiple-out receivers transmitters system operably coupled to two or more dipole antennas wherein, the multiple-in-multiple-out receivers transmitters system includes a transmitter system which includes a coding mode selector to select a coding mode of a symbol of an orthogonal frequency division multiplexing sub-carrier according to a received channel state information that related to the orthogonal frequency division multiplexing sub-carrier;

wherein said coding mode is selectable so that said sub-carrier is able to support the sensitivity required for transmitting in the selected mode, and wherein said system is configured to adaptively group said receivers according to a desired coding mode received with said received channel state information.

20.(Original) The wireless communication device of claim 19, wherein the transmitter system comprises:

a channel state analyzer to select the coding mode based on a quality indicator of the orthogonal frequency division multiplexing sub-carrier.

21.(Original) The wireless communication device of claim 19, wherein the coding mode comprises at least one of a diversity mode and a multiplexing mode.

22.(Original) The wireless communication device of claim 19, wherein the transmitter system comprises:

a first transmitter to transmit the symbol; and

a second transmitter to transmit a coded symbol that is coded according to one or more coding mode.

23.(Original) The wireless communication device of claim 22, wherein the coded symbol is coded either in a diversity mode or in a multiplexing mode.

24.(Original) The transmitter system of claim 22, wherein the second transmitter is able to transmit two or more coded symbols wherein at least some of the coded symbols are coded according the diversity mode and at least some other coded symbols are coded according to multiplexing mode.

25.(Currently amended) A wireless communication system comprising:

a plurality of receivers; and

a station including a coding mode selector to select a coding mode of a symbol of an orthogonal frequency division multiplexing sub-carrier according to a predetermined criterion;

wherein said coding mode is selected so that said sub-carrier is able to support the sensitivity required for transmitting in the selected mode, and wherein said system is configured to adaptively group said plurality of receivers according to a desired coding mode received with a received channel state information.

26.(Original) The wireless communication system of claim 25, wherein the station comprises:

a first transmitter to transmit a first group of symbols of sub-carriers of an orthogonal frequency division multiplexing channel via a first antenna; and

a second transmitter to transmit a second group of symbols of sub-carriers of an orthogonal frequency division multiplexing channel via a second antenna.

27.(Original) The wireless communication system of claim 25, wherein the second group of symbols comprises symbols of the first group of symbols coded according to a diversity mode coding scheme and symbols of the second group of symbols coded according to a multiplexing mode.

28.(Currently amended) An article comprising:

a storage medium, having embodied thereon instructions, when executed, result in:

selecting a coding mode of an orthogonal frequency division multiplexing sub-carrier symbol of a data stream according to a received channel state information that relates to the orthogonal frequency division multiplexing sub-carrier; and

adaptively grouping a plurality of receivers according to a desired coding mode received with said received channel state information

wherein said coding mode is selected so that said sub-carrier is able to support the sensitivity required for transmitting in the selected mode.

29.(Original) The article of claim 28, wherein the instructions, when executed, result in:

coding the data stream generated by a multiple-in multiple-out receivers-transmitters system in a multiplexing mode.

30.(Original) The article of claim 28, wherein the instructions, when executed, result in:

coding the data stream generated a multiple-in multiple-out receivers-transmitters system in a diversity mode.

31.(Cancelled)

32.(Original) The article of claim 28, wherein the instructions, when executed, result in:

coding symbols of a first subset of sub-carriers of an orthogonal frequency division multiplexing channel in a multiplexing mode; and

coding symbols of a second subset of sub-carriers of an orthogonal frequency division multiplexing channel in a diversity mode.